

DESIGN CRITERIA

1. Related Sections: Division 01 and Division 33 Section 33 71 02 apply.
2. Summary: In addition to the construction of the commissary, provide all necessary site work to provide for utilities connections, relocation of existing utilities as required, the extension of utilities to service the building and site to the point of connection, and drainage. Provide all utilities from connection points to building and site.
3. Exterior Electrical Distribution System: Provide new underground electrical distribution system, transformers, and connections to the utility system, using connection points established by the utility operator. Coordinate all utility lines, transformers, and metering with the local utility operator. Most military installations own and operate the primary electrical distribution system, although some commissary sites obtain utilities direct from a civilian utility company. Determine the proper utility provider, and conform to its requirements. Install all underground utilities with marking tape.
 - A. Installation shall conform to latest applicable rules of the National Electrical Code, NFPA No. 70, the National Electrical Safety Code and IEEE/ANSI C2. Do not exceed 470' between manholes in straight runs of underground primary distribution, nor 150' from a pole riser or pad-mount transformer riser to the nearest manhole.
 - B. Provide a radial system fed through a fused type switch. Verify with Host Installation whether pad mount transformer must be connected in delta or wye configuration. Bury high voltage feeder 36" below finished grade and provide appropriately labeled cable markers and tape 12" below finished grade. Design shall ensure that the estimated peak on each transformer shall not exceed the rated capacity of the transformer.
 - C. Transformer. See Section 33 71 02. Transformer pad and cable vault shall be concrete. Transformers will be contractor-furnished and -installed when the military installation operates the primary distribution. Civilian utility companies generally provide their own transformers on a contractor-built pad; follow the utility company's standards and requirements.
 - D. Electrical Conduit. Leave pull rope in each empty utility conduit.
 - 1). Electrical Primary. Provide in 4" min. PVC conduit and provide one spare 4" min. PVC conduit for future use unless directed otherwise by Host Installation or utility company. Encase in concrete. Encase in steel reinforced concrete under paved areas and building foundations. Concrete envelope coverage over conduit shall be minimum 3".
 - 2). Building Service. Provide 4" min. PVC conduits in quantities required by NEC. Encase in steel reinforced concrete duct bank. See Division 26 for conductor specifications. Provide two spare 4" min. PVC conduits for future use. Concrete envelope coverage over conduit shall be minimum 3".
 - E. Telephone Conduit. Provide one 4" PVC conduit for telephone cable and one 4" PVC conduit for spare for future use. One additional 4" conduit with 4 inner ducts will be required where a fiber optic network is used, for fiber optic building service. Encase conduit in steel reinforced concrete under paved areas. Concrete envelope coverage over conduit shall be minimum 3". Route conduits in location different from that of electrical power.
 - F. Underground Conduits. Refer to Guide Specification 33 71 02, Underground Electrical Distribution.
4. Communication Cable. Refer to Division 27 Section 27 15 00.

END OF SECTION